

t23\_prelamb  
(TMJGsi88JPrLfakYnRcdF39xtVvPWTTn345)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v10\_prelamb : \iota \Rightarrow o$  be given. Let  $l2\_prelamb : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r2\_prelamb : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_prelamb : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_prelamb : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $k7\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k8\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_prelamb : \iota \Rightarrow o$  be given. Let  $k3\_prelamb : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (X0 = k1\_xboole\_0) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\ & ((k7\_finseq\_1 X0 k1\_xboole\_0 = X0) \wedge (k7\_finseq\_1 k1\_xboole\_0 X0 = X0)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_prelamb X0) \wedge (l2\_prelamb X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r2\_prelamb X0 (k12\_finseq\_1 \\ & (u1\_struct\_0 X0) X1) X2) \Rightarrow ((r2\_prelamb X0 (k6\_finseq\_1 (u1\_struct\_0 \\ & X0)) (k2\_prelamb X0 X2 X1)) \wedge (r2\_prelamb X0 (k6\_finseq\_1 (u1\_struct\_0 \\ & X0)) (k1\_prelamb X0 X1 X2)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 X0) \Leftrightarrow (m1\_finseq\_1 X1 X0) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_finseq\_1 X1 X0)\wedge(m1\_finseq\_1 X2 X0))\Rightarrow(k8\_finseq\_1 X0 X1 X2 = k7\_finseq\_1 X1 X2) \quad (5)$$

Assume the following.

$$\forall X0.\exists X1.(m1\_finseq\_1 X1 X0)\wedge((v1\_relat\_1 X1)\wedge(v4\_relat\_1 X1 k5\_numbers)\wedge((v5\_relat\_1 X1 X0)\wedge((v1\_funct\_1 X1)\wedge((v1\_xboole\_0 X1)\wedge((v1\_finset\_1 X1)\wedge(v1\_finseq\_1 X1)))))) \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0)\wedge((v10\_prelamb X0)\wedge(l2\_prelamb X0)))\Rightarrow(\forall X1.(m2\_finseq\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2. \\ (m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 \\ (u1\_struct\_0 X0))\Rightarrow(\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0))\Rightarrow \\ (((r2\_prelamb X0 X1 X2)\wedge(r2\_prelamb X0 (k12\_finseq\_1 (u1\_struct\_0 X0) X3) X4))\Rightarrow(r2\_prelamb X0 (k8\_finseq\_1 (u1\_struct\_0 X0) X1 (k12\_finseq\_1 \\ (u1\_struct\_0 X0) (k1\_prelamb X0 X2 X3))) X4)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0)\wedge((v10\_prelamb X0)\wedge(l2\_prelamb X0)))\Rightarrow(\forall X1.(m2\_finseq\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2. \\ (m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 \\ (u1\_struct\_0 X0))\Rightarrow(\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0))\Rightarrow \\ (((r2\_prelamb X0 X1 X2)\wedge(r2\_prelamb X0 (k12\_finseq\_1 (u1\_struct\_0 X0) X3) X4))\Rightarrow(r2\_prelamb X0 (k8\_finseq\_1 (u1\_struct\_0 X0) (k12\_finseq\_1 \\ (u1\_struct\_0 X0) (k2\_prelamb X0 X3 X2)) X1) X4)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.v1\_xboole\_0 (k6\_finseq\_1 X0) \quad (9)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_struct\_0 X0))\Rightarrow(\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_1 X1 X0)\Rightarrow((v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1)\wedge(v1\_finseq\_1 X1)) \quad (11)$$

Assume the following.

$$\forall X0.(l2\_prelamb X0)\Rightarrow(l1\_prelamb X0) \quad (12)$$

Assume the following.

$$\forall X0.(l1\_prelamb\ X0)\Rightarrow(l1\_struct\_0\ X0) \quad (13)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge(l1\_prelamb \\ &X0))\wedge((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (u1\_struct\_0 \\ &X0))))\Rightarrow(m1\_subset\_1\ (k2\_prelamb\ X0\ X1\ X2)\ (u1\_struct\_0\ X0)) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge(l1\_prelamb \\ &X0))\wedge((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (u1\_struct\_0 \\ &X0))))\Rightarrow(m1\_subset\_1\ (k1\_prelamb\ X0\ X1\ X2)\ (u1\_struct\_0\ X0)) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge(m1\_subset\_1\ X1\ X0))\Rightarrow \\ &(m2\_finseq\_1\ (k12\_finseq\_1\ X0\ X1)\ X0) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l2\_prelamb X0)) \Rightarrow ((v10\_prelamb \\
& X0) \Leftrightarrow ((\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (r2\_prelamb \\
& X0 (k12\_finseq\_1 (u1\_struct\_0 X0) X1) X1)) \wedge ((\forall X1.(m2\_finseq\_1 \\
& X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow ((r2\_prelamb \\
& X0 (k8\_finseq\_1 (u1\_struct\_0 X0) X1 (k12\_finseq\_1 (u1\_struct\_0 \\
& X0) X3)) X2) \Rightarrow (r2\_prelamb X0 X1 (k2\_prelamb X0 X2 X3)))))) \wedge ((\forall X1. \\
& (m2\_finseq\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow \\
& ((r2\_prelamb X0 (k8\_finseq\_1 (u1\_struct\_0 X0) (k12\_finseq\_1 ( \\
& u1\_struct\_0 X0) X3) X1) X2) \Rightarrow (r2\_prelamb X0 X1 (k1\_prelamb X0 X3 X2)))))) \wedge \\
& ((\forall X1.(m2\_finseq\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.( \\
& m2\_finseq\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m2\_finseq\_1 X3 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow \\
& (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow (\forall X6.(m1\_subset\_1 \\
& X6 (u1\_struct\_0 X0)) \Rightarrow (((r2\_prelamb X0 X1 X5) \wedge (r2\_prelamb X0 (k8\_finseq\_1 \\
& (u1\_struct\_0 X0) (k8\_finseq\_1 (u1\_struct\_0 X0) X2 (k12\_finseq\_1 \\
& (u1\_struct\_0 X0) X4)) X3) X6)) \Rightarrow (r2\_prelamb X0 (k8\_finseq\_1 (u1\_struct\_0 \\
& X0) (k8\_finseq\_1 (u1\_struct\_0 X0) (k8\_finseq\_1 (u1\_struct\_0 X0) \\
& X2 (k12\_finseq\_1 (u1\_struct\_0 X0) (k2\_prelamb X0 X4 X5))) X1) X3) \\
& X6)))))) \wedge ((\forall X1.(m2\_finseq\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ( \\
& \forall X2.(m2\_finseq\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m2\_finseq\_1 \\
& X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow (\forall X6. \\
& (m1\_subset\_1 X6 (u1\_struct\_0 X0)) \Rightarrow (((r2\_prelamb X0 X1 X5) \wedge (r2\_prelamb \\
& X0 (k8\_finseq\_1 (u1\_struct\_0 X0) (k8\_finseq\_1 (u1\_struct\_0 X0) \\
& X2 (k12\_finseq\_1 (u1\_struct\_0 X0) X4)) X3) X6)) \Rightarrow (r2\_prelamb X0 \\
& (k8\_finseq\_1 (u1\_struct\_0 X0) (k8\_finseq\_1 (u1\_struct\_0 X0) ( \\
& k8\_finseq\_1 (u1\_struct\_0 X0) X2 X1) (k12\_finseq\_1 (u1\_struct\_0 \\
& X0) (k1\_prelamb X0 X5 X4))) X3) X6)))))) \wedge ((\forall X1.(m2\_finseq\_1 \\
& X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m2\_finseq\_1 X2 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4. \\
& (m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 \\
& (u1\_struct\_0 X0)) \Rightarrow ((r2\_prelamb X0 (k8\_finseq\_1 (u1\_struct\_0 \\
& X0) (k8\_finseq\_1 (u1\_struct\_0 X0) (k8\_finseq\_1 (u1\_struct\_0 X0) \\
& X1 (k12\_finseq\_1 (u1\_struct\_0 X0) X3)) (k12\_finseq\_1 (u1\_struct\_0 \\
& X0) X4)) X2) X5) \Rightarrow (r2\_prelamb X0 (k8\_finseq\_1 (u1\_struct\_0 X0) ( \\
& k8\_finseq\_1 (u1\_struct\_0 X0) X1 (k12\_finseq\_1 (u1\_struct\_0 X0) \\
& (k3\_prelamb X0 X3 X4))) X2) X5)))))) \wedge ((\forall X1.(m2\_finseq\_1 \\
& X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m2\_finseq\_1 X2 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4. \\
& (m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow (((r2\_prelamb X0 X1 X3) \wedge (r2\_prelamb \\
& X0 X2 X4)) \Rightarrow (r2\_prelamb X0 (k8\_finseq\_1 (u1\_struct\_0 X0) X1 X2) ( \\
& k3\_prelamb X0 X3 X4)))))))))
\end{aligned} \tag{17}$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v10\_prelamb X0) \wedge (l2\_prelamb \\ & X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r2\_prelamb X0 (k6\_finseq\_1 \\ & (u1\_struct\_0 X0)) X1) \Rightarrow ((r2\_prelamb X0 (k6\_finseq\_1 (u1\_struct\_0 \\ & X0)) (k2\_prelamb X0 X2 (k2\_prelamb X0 X2 X1))) \wedge (r2\_prelamb X0 (k6\_finseq\_1 \\ & (u1\_struct\_0 X0)) (k1\_prelamb X0 (k1\_prelamb X0 X1 X2) X2)))))) \end{aligned}$$